

AN UNUSUAL NEW SPECIES OF *HELMIOPSIS* H. PERRIER (STERCULIACEAE) FROM MADAGASCAR

Eight species of *Helmiopsis* H. Perrier (Sterculiaceae) currently are recognized in the *Flore de Madagascar et des Comores* (Arènes, 1959). All are characterized by monodelphous androecia with staminodes opposite the petals, sessile ovaries, caducous petals, capsular fruits with apically winged seeds, and overall vestitures of peltate or fimbriate (i.e., peltate with fimbriate margins) scales. All species described to date are restricted to western Madagascar. A new species of *Helmiopsis* is described here from the northern mountains of Madagascar, also part of the phytogeographical *Domaine de l'Ouest* of the island (Humbert, 1965). This species combines several features that are unusual for the genus. For example, its spheroid, rather than conical, capsule morphology is unique and provides the basis for the name *Helmiopsis sphaerocarpa* L. Barnett. The seed wings of *H. sphaerocarpa* are atypical for the genus in being reduced to only a thin, ventral keel; ordinarily seed wings of *Helmiopsis* species are apical and elongate, to 10 mm in length. The inflorescence is complex in structure, being multibranching and many-flowered, as opposed to the few-flowered cymose inflorescences more commonly found in the genus. The terminal nature of the inflorescence is also unusual in this species, although terminal inflorescences also have been observed in isolated collections of *H. pseudopopulus* (Baillon) Capuron (e.g., *Capuron 24661*, P). Finally, this new species is unique in bearing glandular tissue both on the calyx lobes and on the petals; in all other *Helmiopsis* species with glandular tissue, the tissue is restricted to either the calyx or the corolla, but is never found in both perianth whorls.

***Helmiopsis sphaerocarpa* L. Barnett, sp. nov.**

TYPE: Madagascar: Centre (Nord) jusqu'aux confins de l'Ouest (Nord), Massif de la Montagne d'Ambre, crête entre les bassins de la rivière des Makis et de la rivière d'Ankazobe, entre 800 et 600 m d'alt., 26–27 May 1970 (fl), *Capuron 29194 SF* (holotype, P; isotype, TEF). Figure 1.

Arbuscula vel arbor, squamarum lepidotarum deciduarum vestita. Folia late ovata vel anguste obovata, cordata, palmatim 5(–7) nervata. Inflorescentiae axillares et terminales, 15–30 floribus. Calyx 5-partita, lobis intus glandulosis. Petala 5, intus glandulosa. Tubus

staminalis 1 mm altus; staminibus 10, staminodiis 5. Ovarium 5-loculare, loculis 2-ovulatis; stylo glabrato, stigmatibus leviter 5-lobata. Capsula sphaerica, loculicida. Semen carina ventrale membranacea.

Large shrub or tree to 8–12 m tall, branches terete, finely striate, new growth sparsely peltate-scaled, older twigs glabrate. Leaves alternate, deciduous, blades broadly ovate to narrowly obovate, 6.5–12 cm long, 4–9 cm wide, apex acute to acuminate, base shallowly cordate to cordate, palmately 5(–7) nerved, midvein and secondary veins conspicuous, raised below and slightly depressed above, discolorous, margins irregularly crenulate, lower surface with scattered peltate and fimbriate scales, becoming glabrate; petioles 1–6 cm long, with scattered peltate and fimbriate scales. Inflorescences terminal and in the axils of uppermost 3–5 leaves, determinate, branching 3–5 times, bearing 15–30 flowers. Floral buds ovoid, 4–5 mm long, 4–4.5 mm wide. Calyx 5-lobed, lobes connate only at the bases, lanceolate, ca. 7 mm long, 3 mm wide, outer surfaces densely covered with peltate scales, inner surfaces glabrate and with an arc of glandular tissue at the base. Petals 5, white (according to label data of *Capuron 29194 SF*), obovate, asymmetrical, 7–8 mm long and 7 mm wide, inner surface gland-dotted toward the base. Androecium coroniform, staminal column ca. 1 mm tall; stamens 10, ca. 3 mm long from the base of the column, each of the 5 antisealous pairs alternating with a staminode; filaments 1–1.5 mm long; anthers ca. 2 mm long; staminodes 5, oblanceolate, 4–5 mm long, ca. 1 mm wide. Ovary 5-locular, densely peltate-scaled; ovules 2 per locule, collateral; style 5–6 mm tall, glabrate; stigma obscurely 5-lobed. Fruit capsular, woody, spheroid, dorsally loculicidal, 6–8 mm long, 8–10 mm wide, subtended by a woody, persistent calyx. Seeds 2 per carpel, asymmetrically ovate and laterally flattened, 5–6 mm long, 3–4 mm wide, each with a narrow, membranous, ventral keel.

Additional specimens examined. MADAGASCAR. NORTHERN SECTOR. DISTRICT DIÉGO-SUAREZ: Versant Est du massif de l'Ankerana, 17 Dec. 1966 (fr), *Capuron 27349 SF* (P, TEF); Montagne des Français, 11 Sept. 1952 (fr), *Service Forestier 5673 SF* (P, TEF); Ambalafary, Ambodipo-Antsalalalina, 7 June 1956 (fl), *Service Forestier 15962 SF* (P, TEF).

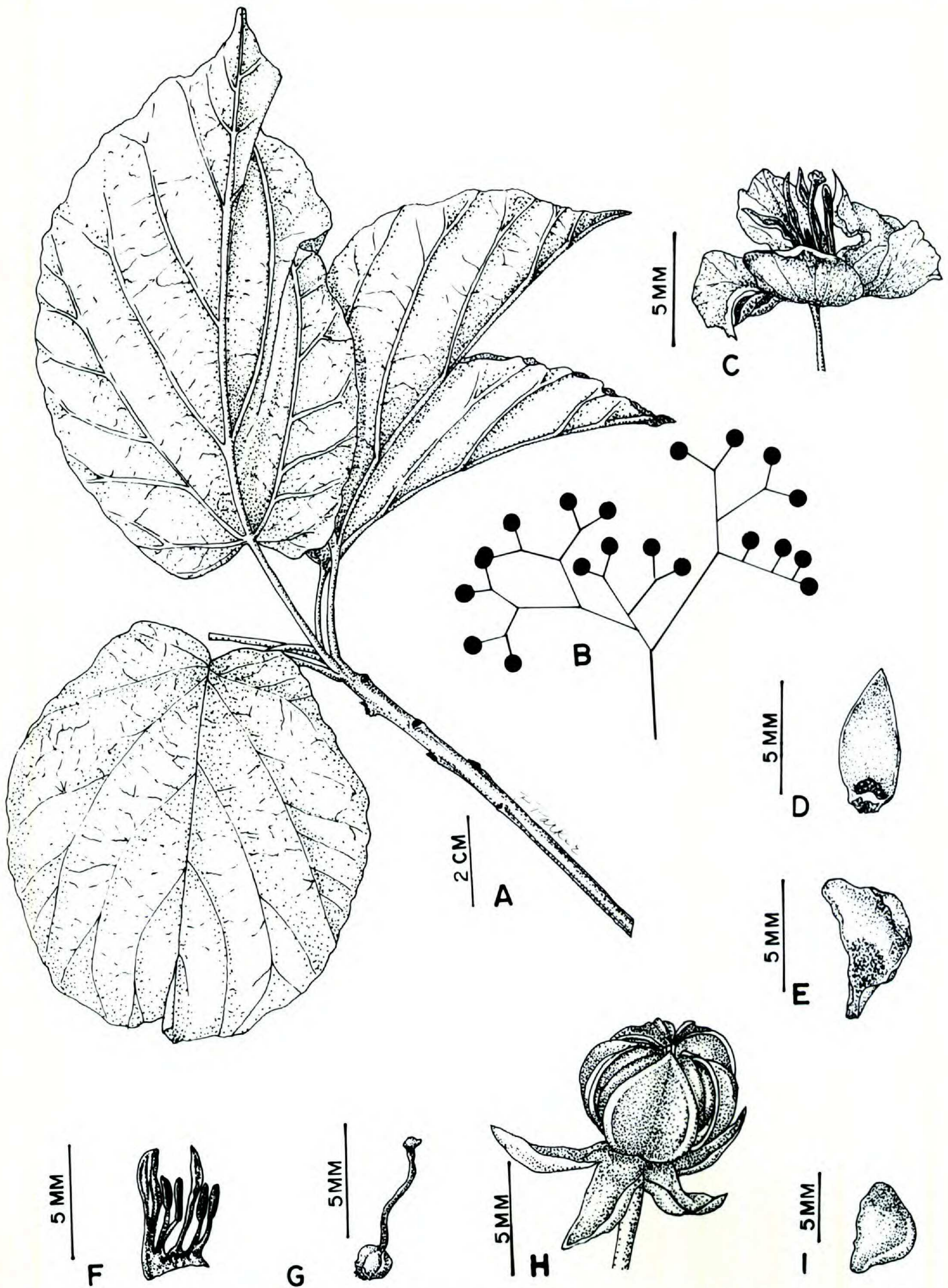


FIGURE 1. A-I. *Helmiopsis sphaerocarpa*.—A. Twig.—B. Schematic diagram of an inflorescence axis.—C. Flower.—D. Inner surface of calyx lobe showing glandular tissue.—E. Inner surface of petal showing glandular tissue.—F. Detail of the androecium.—G. Gynoecium.—H. Fruit.—I. Seed. (A, B. Capuron 27349 SF; C-G. Capuron 29194 SF; H, I. Service Forestier 5673 SF.)

Helmiopsis sphaerocarpa occurs on mountain slopes between 50 and 800 m altitude. It has been reported on black volcanic soils, but its presence on the Montagne des Français suggests that it also may occur on limestone (Lemoine, 1906).

The 5-carpellate gynoecium and reduced stigmata of *Helmiopsis sphaerocarpa* place this species in *Helmiopsis* subg. *Helmiopsis*. Its broadly ovate leaves, glandular petals, and ten stamens ally it with sect. *Glandulipetalae* Arènes in subg. *Helmiopsis*. *Helmiopsis pseudopopulus* (Baillon) Capuron, a member of the same section, may be the most closely related species; it also has a many-flowered inflorescence, occasionally with a terminal axis. Glandular tissue at the base of the calyx, however, has been observed in only one other *Helmiopsis* species, *H. inversa* H. Perrier (sect. *Helmiopsis*).

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